

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) ~~Process~~ A process for producing ethane, ~~characterized in that it~~ which comprises bringing methane used only as an initial alkane into contact with a metal catalyst selected from the group consisting of metal hydrides, metal organic compounds and mixtures thereof.

2. (Currently Amended) ~~Process~~ The process according to ~~Claim~~ claim 1, ~~characterized in that~~ wherein the metal catalyst comprises at least one metal, ~~Me, chosen~~ selected from the group consisting of lanthanides, the actinides and the metals from Groups 2 to 12, ~~preferably 3 to 12,~~ of the Periodic Table of the Elements.

3. (Currently Amended) ~~Process~~ A process for the conversion of methane to carbon-containing products, ~~characterized in that~~ comprising bringing methane ~~is brought~~ used only as an initial alkane into contact with a metal catalyst comprising at least one metal, ~~Me, chosen~~ selected from the group consisting of lanthanides, the actinides and the metals from Groups 2 to 12, ~~preferably 3 to 12,~~ of the Periodic Table of the Elements, so as to produce ethane in a proportion of at least 65% by weight with respect to carbon-containing products formed in the process.

4. (Currently Amended) ~~Process~~ The process according to ~~Claim~~ claim 3, ~~characterized in that~~ wherein the ethane is produced in a proportion of at least 70%, ~~preferably of at least 80%, in particular of at least 90%, especially of at least 95%, more especially of at least 98% or 99%,~~ by weight with respect to carbon-containing products formed in the process.

5. (Currently Amended) ~~Process~~ The process according to Claim ~~claim~~ 3 or 4, ~~characterized in that~~ wherein the metal catalyst is ~~chosen~~ selected from the group consisting of metal hydrides, metal organic compounds and mixtures thereof.

6. (Currently Amended) ~~Process~~ The process according to ~~any one of~~ Claims claim 1 ~~[[to 5]]~~ or 3, ~~characterized in that it~~ wherein the process is carried out under conditions involving a non-oxidative coupling of methane.

7. (Cancelled).

8. (Currently Amended) ~~Process~~ The process according to ~~any one of~~ Claims claim 1 ~~[[to 7]]~~ or 3 ~~characterized in that it~~ wherein the process is a single-stage process.

9. (Currently Amended) ~~Process~~ The process according to ~~any one of~~ Claims claim 1 ~~[[to 8]]~~ or 3 ~~characterized in that it~~ wherein the process is carried out with operating conditions maintained substantially constant, ~~preferably continuously,~~ during the ethane production.

10. (Currently Amended) ~~Process~~ The process according to ~~any one of~~ Claims claim 1 ~~[[to 9]]~~ or 3 ~~characterized in that it~~ wherein the process is carried out under a total absolute pressure ranging from 10^{-3} to 100 MPa, ~~preferably from 0.1 to 50 MPa, in particular from 0.1 to 30 MPa or from 0.1 to 20 MPa, especially from 0.1 to 10 MPa.~~

11. (Currently Amended) ~~Process~~ The process according to ~~any one of~~ Claims claim 1 ~~[[to 10]]~~ or 3 ~~characterized in that it~~ wherein the process is carried out at a temperature ranging from -30°C to +800°C, ~~preferably from 0 to 600°C, in particular from 20 to 500°C, especially from 50 to 450°C.~~

12. (Currently Amended) ~~Process~~ The process according to ~~any one of~~ Claims claim 1 ~~[[to 11]]~~ or 3 characterized in that it ~~wherein the process~~ is carried out in the presence of one or more inert agents, ~~in particular liquid or gaseous inert agents,~~ especially in the presence of one or more inert gases.

13. (Currently Amended) ~~Process~~ The process according to ~~any one of~~ Claims claim 1 ~~[[to 12]]~~ or 3 characterized in that it ~~wherein~~ the metal catalyst is chosen ~~from metal catalysts supported on and preferably grafted to a solid support.~~

14. (Currently Amended) ~~Process~~ The process according to Claim claim 13, characterized in that it ~~wherein~~ the solid support is chosen selected from the group consisting of ~~inorganic solid supports, preferably from~~ metal oxides, refractory oxides, molecular sieves, sulphated metal oxides, sulphated refractory oxides, metal sulphides, refractory sulphides, sulphided metal oxides, sulphided refractory oxides and azides.

15. (Currently Amended) ~~Process~~ The process according to ~~any one of~~ Claims claim 1 ~~[[to 14]]~~ or 3 characterized in that it ~~wherein~~ the metal, ~~Me~~, of the metal catalyst is at least one metal chosen selected from the group consisting of yttrium, scandium, lanthanum, titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, rhenium, iron, ruthenium, cobalt, rhodium, iridium, nickel, palladium, platinum, cerium and neodymium.

16. (Currently Amended) ~~Process~~ The process according to Claim claim 15, characterized in that it ~~wherein~~ the metal, ~~Me~~, is at least one metal chosen selected from the group consisting of yttrium, titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, ruthenium, rhodium and platinum.

17. (Currently Amended) ~~Process~~ The process according to Claim ~~claim~~ claim ~~[[15]]~~ 16, ~~characterized in that it wherein~~ the metal, ~~Me~~, is at least one metal ~~chosen~~ selected from the group consisting of yttrium, vanadium, niobium, tantalum, chromium, molybdenum, tungsten, ruthenium, rhodium and platinum.

18. (Currently Amended) ~~Process~~ The process according to ~~any one of~~ Claims claim 1 ~~[[to 17]]~~ or 3 ~~characterized in that it wherein the process~~ is carried out in the gas phase, ~~in particular in a fluidized bed reactor and/or a reactor with a mechanically stirred bed, or a stationary bed reactor or circulating bed reactor.~~

19. (Currently Amended) ~~Process~~ The process according to Claim claim 18, ~~characterized in that it wherein~~ the metal catalyst is used in a solid form, essentially forming the bed of the reactor.

20. (New) The process according to claim 1 or 3, wherein the process comprises adding the methane to the metal catalyst, or adding the metal catalyst to the methane, or simultaneously mixing the methane and the metal catalyst.